

***Translation from the Polish language***

**THE PATENT OFFICE OF THE REPUBLIC OF POLAND**

*/in the middle the national emblem of the Republic of Poland/*

**A CERTIFICATE**

Advanced Digital Broadcast Sp. z o.o.

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Taipei, Taiwan

on September 25th 2002 submitted to the Patent Office of the Republic of Poland an application for granting a patent for an invention called „**The method of selecting a channel at turning on a television set.**”

The patent conditions and drawings attached to this certificate are true copies of the documents which were submitted together with the application submitted on September 25, 2002.

The application was submitted under the following number: P-356280.

Warsaw, August 14th, 2003

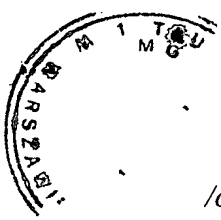
on behalf of the President

*/-/ illegible signature*

Eng. Barbara Zabczyk

Director of the Department





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PATENT OFFICE OF THE REPUBLIC OF POLAND

\* 1 \*

*/page 2/*

*/in the right hand upper corner of the page the following number: /*

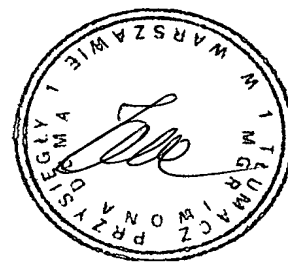
356280

*/in handwriting the following number: 3*

*/each of the following pages of the document have a round stamp with the national emblem of the Republic of Poland in the middle, and the following inscription in the rim impressed in the bottom of a page: /*

PATENT OFFICE OF THE REPUBLIC OF POLAND

\* 1 \*



## **The method of selecting a channel at turning on a television set**

The object of the invention is a method of selection of channel at turning on a television set, especially automatic method of selecting a channel, which was most recently or most frequently watched by the user at a given time of day. There is also a system presented for monitoring the viewing ratings of programs and two variants of storing information about the viewing ratings.

The currently known television sets are turned on by means of a remote control most often in two ways, it is either by pressing a digit which corresponds to the number of the program, which the user wants to watch, or by pressing the 'Power-on' button, which turns on the most recently watched program on the television set.

There is a method of selecting a channel when the television set is being turned on, known from the USA patent number US 5438377, which shows the typical method of selecting a channel by pressing the buttons of the remote control, which define, which channel should be turned on. The channel is selected manually by the user, with lack of any 'intelligent' reaction from the system in the same time.

There is a method known from the American patent application number US2002/008789 to monitor the programs, watched by the user, while this information is being used for a different purpose than selection of the channel during turning on the television set.

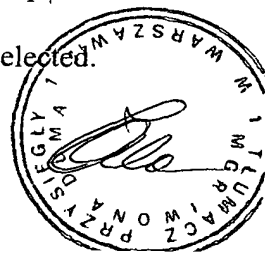


Another American patent document with the number US 5801747 presents a method of monitoring programs, watched by the user in order to use the results later to display a program guide, with the simultaneous storage of information about programs that were watched at given channels.

In turn the patent US 5635989 presents another method of monitoring the programs watched by the user in order to use the results later to display a program guide. The method of recording and storing information about the viewing ratings of programs records only time span during which a given program was watched, without registering the hour, at which the given program was watched.

The method of selecting a channel at turning on the television set according to this invention uses a method with the use of 'Power-on' function with the simultaneous selection of channel, which depends on the system settings, and which can be the one, which was watched most recently or most frequently on a given day of week and time of day.

The method of selecting a channel at turning on the television set according to the invention is implemented on the grounds of viewing rating statistics, which are recorded in a table or a list, while the channel that is selected is the one which was most recently watched on the given day and hour, and in case, when in the table or in the list there is no data on the viewing rating of channels at a given hour, the channel, which was most recently watched at a later hour, is activated. In a modification of this implementation the selected channel is the most often watched channel on a given day at a given hour, however in case when two channels have the same viewing rating the one which was watched as the last one is selected, while in case when in the table or on the list there is no data on the viewing rating of channels, a channel, which was most frequently watched at a later hour is selected. Moreover in case when the viewing rating of the most frequently watched channel in a given time is compared with the channel watched at a later time, the channel with higher viewing rating is selected.



Statistics of viewing ratings are created in the following combinations: separate for each day of the week, separate for days from Monday to Friday and separate for Saturday and Sunday. In case when there is no space for a new statistics, the statistics, related to the oldest period is deleted and its data are copied to a free space of the currently oldest statistics. Statistics are being created by means of a list, the records of which include information about the channel, time of start and finish of watching a given channel, which is implemented as one list in the form of circular buffer, in which time is specified as the date and the hour and/or separate lists for each day including unlimited number of records, in which time is given only as the hour. In a modification of the implementation, the statistics are created as a table, the columns of which define time intervals, the rows define consecutive days, while the fields indicate the number of channel, which was watched in a given time interval of a given day.

The advantage of the revealed solution is that the procedure of selecting the channel is started at turning on the television set, which happens at pressing the 'power-on' button when the 'favorite channel of the user in a given time of the day' is turned on. The viewing rating of channels is recorded in a table or on a list, in which data are updated with a frequency set by time interval, which specifies the accuracy of data collection, and what follows it, the accuracy with which the television set will select the channel. It is advantageous that the value of this interval is  $T=10$  min.



The described solution monitors the programs, which are watched by the user. It often happens that the user in a given day, in a specific time watches his/her favorite program, for example on Monday he/she watches the news at 19.30 on channel TV1. The system runs a statistics of the viewing rating of separate channels, which allows to define the channel that was watched most recently or most frequently in a given time. The system is insensitive to fast switching of channels, because it is automatically filtered, and the database created includes only the programs, which were watched longer than the defined time interval. The statistics being created is used at turning on the television set. In the described case, when the user turns on the television set for example next Monday at 19.30, channel TV1 will be automatically turned on. The revealed method of selecting the channel at turning on the television set can be used in any receiver of television signal, which has storage and a processor to serve the appropriate application. A typical device which meets such requirements is a digital television decoder, although the system can be also built in a television set possessing appropriate storage and a processor to operate it.

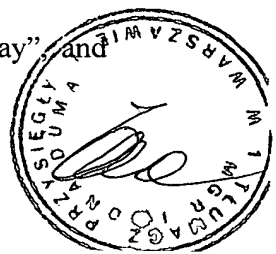
The object of the invention was illustrated by means of an exemplary embodiment, in the drawing, in which fig. 1 demonstrates a diagram of a typical television set considering the blocks vital for the described method of selecting the channel, fig. 2 and 3 – the algorithm of monitoring the signal watched and filing in the viewing rating tables, fig. 4, 5 and 6 – the algorithm of monitoring the signal watched and filling in the viewing rating list, fig. 7, 8 and 9 shows the algorithm of selecting the program with the use of a viewing rating table at switching on the TV set, and fig. 10, 11 and 12 – the algorithm of selecting the program with the use of a viewing rating list at turning on the TV set.



As it is shown in fig. 1 of the drawing, the diagram of a typical 101 receiver including the blocks important for the system, being described, includes:

- 1- input block 103 – used to receive signal 102 and its possible processing into digital form,
- 2- A/V 107 block – generating a signal to be displayed on the screen in a specific format (RGB, PAL, NTSC, etc.)
- 3- Storage block 106 – including different types of storage: RAM, ROM, Flash, HDD
- 4- CPU block 105 – a processor controlling work of all the systems
- 5- Other 104 systems, such as a decoder of MPEG format (in digital television decoders), Conditional Access (CA) system, remote control unit (RCU) system and others, required to provide appropriate work of the receiver.

The presented system application during its operation uses CPU and storage system to create and store databases of the viewing ratings of programs and by means of giving commands in the mode of communication with the input block one can specify, which channel should be used. The channels watched by the user for a longer time than the defined time interval are stored in the database. The channels watched by the user for a longer time than the defined time interval are stored in the database. The database may have a form of a list including information on the next selected programs, or tables storing information on the viewing rating of programs during a given time. Every day a new list or a row in the table is created, which is added to the database. Statistics obtained from the data of this database allow selecting appropriate channel when the receiver is being turned on. Depending on the settings, the quantity and sizes of the lists or tables may vary. The user can choose if the programs watched should be stored separately for each day of the week, total for days 'Monday-Friday' and separately for 'Saturday' and separately for 'Sunday' or total for days 'Monday-Friday' and total for days "Saturday-Sunday", and

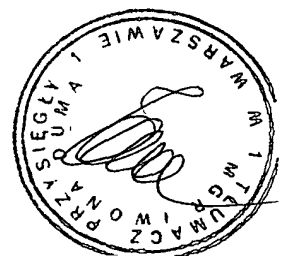


finally all total for each day. This has an influence on the choice of channel on the next day the receiver is turned on.

Two methods of creating a database of the channels watched are presented below. The first one called the list requires less storage but more computing power. The second one, called the table occupies more space, but its processing is faster. Recording of information for separate days, it is for example separately for each day or all together for all days, defines the method of processing tables and lists. For a table the method of recording will define the method of creating tables. For lists, it will define the method of searching the list. The list of channels watched is more optimum solution than the tables of viewing ratings as far as the use of storage is concerned.

The list includes a history of switching the channels, while one record incorporates information on the program and the date and time of start and finish of watching it, thus it specifies which channels were turned on consecutively and for how long. In the same time the list does not include information about the channels, for which the watching time was shorter than the specified time interval -  $T$ . Next information is added only when the given channel was watched for the required number of minutes -  $T$ , which eliminates information not needed by the system about fast switching of the channels. An exemplary format of the list for one day is presented below:

Channel	Start	Stop
5	18.20	19.20
7	19.20	20.30
8	20.35	21.40

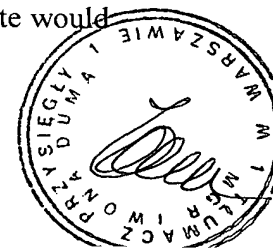




The exemplary format of one list for all days is presented below:

Channel	Start	Stop
5	2002.06.20 18.20	2002.06.20 19:20
7	2002.06.20 19.20	2002.06.20 20.30
8	2002.06.20 20.35	2002.06.20 21.40

The format of recording the date and hour presented above has the purpose of showing what data have been recorded. In the real implementation of the system one can record the date and the hour in a more economical form (for example the number of hours or seconds since the year 2000 or with the application of MJDUTC format (defined by DVB – Digital Video Broadcast). In result of filtering it can happen that there will be no information about the channel, which was watched in certain moments, as for example the 5-minute break between channel 7 and 8. In such case the channel, which is closest in time will be selected always, as the next on the list, if time of its beginning is closer to the current hour, than time of finishing the previous one or the preceding one on the list, if there is no next one in the database or if time of finishing the preceding one is closer to the current hour than time of starting the next one. Depending on the arrangements at the design stage one list can be created, where the date and the hour of start and finish of watching the given channel, operating based on circular buffer, where in case of overflow new information is inserted in place of the oldest, or separate lists are created for each day, where only the hour of start and finish of watching the given channel can be recorded, and the date would



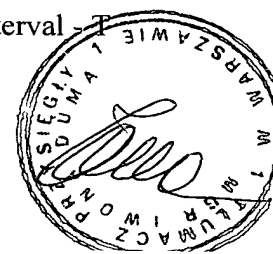
be specified for example by the name of the table.

Data about the viewing ratings of channels can be stored also in the viewing rating tables, which differ from the lists in their constant size, and faster processing. Programs, like the ones on the list are recorded in them, which are watched by the user at specified time intervals. In contrary to the list, the times of start and finish of watching the given programs are not recorded in the tables. Each element of the table corresponds to a specific time interval. In case when there is more than one table, the day to which it refers may be specified for example by the name of the table.

The exemplary table is presented below:

0.00	0.10	0.20		1.30	1.40		23.30	23.40	23.50
-	-	-	...	-	-	.....	-	-	-
0.10	0.20	0.30		1.40	1.50		23.40	23.50	0.00
1	1	1		5	5		24		
				4	4		32	32	32
1	1	1		5	5			24	24
2	2	2		5	5		24	24	24
1	1	1		8	5		24	24	24

The fields of the table include the number of channels, which were watched in time interval defined for the column, in which the given field is located. In separate rows there are viewing rating data for separate days, to which the table is related. If there is one table for all days of the week, the rows will incorporate data included in viewing rating on separate days. If each day of the week has its table, in rows there will be data on viewing rating on a given day in separate weeks. Empty fields in the table mean that on a given day in a given time interval -



the television set was not used. The size of the table can be adjusted to the available size of storage and computing capacity of the receiver. The table in the example includes five rows, while due to the decrease of their number to one, the viewing rating data will be related only to one day, while an increase of their number to any quantity will allow to specify more precisely, which channel is most frequently watched at a given time of the day.

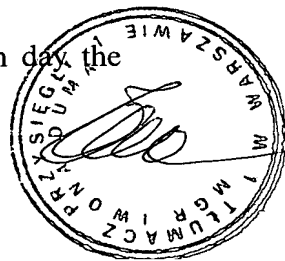
Also time interval for which viewing rating data are recorded can be decreased or increased. The time of 10 minutes, presented in the table was assumed to be optimum. It is obvious that the first row in the presented table, specifying time intervals, is not being used in the real system. Knowing the interval - T of viewing rating measurement (in the example: 10 minutes) one can always calculate the number of the column, specifying the location of a given time interval by using the formula:

Column = (start of\_time interval\_h\*10 + the beginning of\_time interval\_min) / T) + 1 for the given example, data related to time interval 1.30-1.40 will be expressed in Column =  $((1*60+30)/10)+1 = 10$

Viewing rating list is created during switching the channels and/or switching off the receiver and additionally during watching after the elapse of the assigned time, defined for example by multiple time interval - T in order to protect against any accidental power cut. It can be for example 10\*T. Only in these moments the list can be modified. The tables of viewing rating are filled in on a regular basis, during the operation of the television set. Operations on the table and on the list are performed with the use of such parameters as:

- T - the length of time interval, for which the viewing rating data are recorded (it specifies how frequently the table should be modified and helps to calculate the number of the column, in which data are stored, and for the list it specifies the shortest time interval during which a given program must be watched, in order to add it to the list),

- R - the number of rows, which may be located in the table. When on a given day the



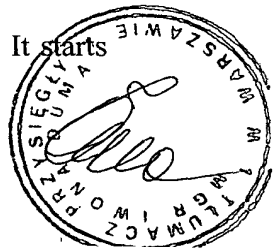
television set is turned on for the first time, a new row is being added on the top of the table. If adding this row caused that the allowed size of the table was exceeded, the last row will be deleted, and information in it will be rewritten to the empty fields of the last but one row.

- L - the maximum size of the list, defined by the number of records on the list. When the system includes many lists, L can be defined by the formula  $L=24*60/T$ , where 24 is the number of hours, 60 - the number of minutes in the hour, and T - the length of time interval in minutes. Then L will be used to specify the size of memory, which is required to create a new list. When the system includes only one list, L can be defined by the size of the available memory divided by the size of one record. Then L will be used at adding a new record to the list, in order to check, if it can fit to the list.

In the moment when the system starts working, an empty line or a table with one empty row is created.

The algorithm of monitoring the watched signal and filling in the viewing rating tables is presented in fig. 2 and 3 of the drawing. The procedure starts in time when the system is turned on, it is when the television set is switched on - 201. Step 202 defines the table that should be used by the system, its parameters and the parameters of the system. The next step is to check if on a given day the table was already modified - 203. If not, a new row should be created in the table. In step 204 a check is performed if there is space for a new row in the table. If there is no space, information from the last row is stored in the memory - 205. Next, this row is deleted - 206. In step 207 the function adds a new row to the beginning of the list. Next in step 208, if the last row was deleted, information read from that row is copied to the current last row in place of empty fields in this row. If the table consists of only one row, in result of the activity of this function, a new row will be filled with the values from the row, which described the previous day.

Next the procedure comes to the part of monitoring the viewing rating of programs. It starts



together with the beginning of new time interval 209, it is for example by 'striking' full  $T=10$  min. of a given hour. In step number 211, information about the program, which is currently watched, is collected. Next the procedure waits for an event - step 212. When the user has selected a new channel, the procedure stores time of viewing rating of the current channel in the handy table - 213, changes the channel to the one, requested by the user - step 214, and returns to point 211. When in step 212 time interval has elapsed, the procedure stores time of viewing rating of the current channel in the handy table - step 216. Next it reads from this table a program, the viewing rating of which is the highest - step 217. In step 218 it records this program in the viewing rating table. This step finishes the operation of the procedure for a given time interval, and it returns to point 211. However if a new day is the event in step 212 (24.00 hour), the system will come back to step 202, in order to start the procedure of adding a new row to the table.

The handy table of viewing ratings includes time of watching the channels in a given time interval. It looks as follows:

Channel	Time
1	5
13	2
3	1
2	1

In order to avoid problems with overflow of the table, the field 'time' may indicate a minimum period, during which a given program was watched. It can be defined for example as a fraction of  $T$  period. For example, assuming  $0.1 \cdot T$  for the given example, this will be a minute, and the handy table will never exceed 10 rows. If a program was watched shorter than



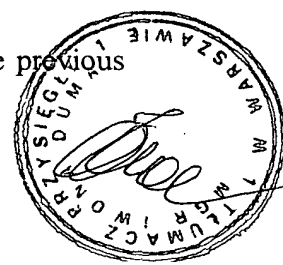
time specified, it will not be considered in this table. Thanks to this we can avoid recording in this table information about programs, on which the user stopped by just for a while.

The algorithm of monitoring the watched signal and filling in the list of viewing ratings is presented in fig. 4, 5 and 6 of the drawing. The procedure starts with turning the system on, it is turning on the television set - 301. In step 302 it is defined what are the parameters of the system (the number of lists, which are used by the system, T time interval, and maximum time of the list). Next step 303 is to check if the system uses one list including data on viewing ratings on all days, or separate lists for separate days. If it has separate lists, it defines if on a given day a new list was already created - 304. If not, it checks, if it has enough storage to create a new list (defined by the maximum size of the list) - 305. If not, it reads information from the oldest list - 307. Next it removes this list in step 308. The next step is to add the read information to the oldest list for this day of the week, which was related to the removed list - step 309. Information is copied to places, in which there is no record in the current list under the condition that time of watching a given channel is at least equal the T time interval. Next the procedure checks once again, if in result of removing the oldest list enough space in storage was freed to create a new list. If so, in step 306 a new list is created. Next the procedure comes to the part of monitoring the viewing rating of programs. In step 310 it collects information on the selected channel and current time. It records on the list, as the last item, the program and time of the beginning of watching - step 311. Next, it waits for an event - 312. If selection of another channel by the user was the event, it checks if time T - 313 elapsed since time of starting the program recently recorded in the list. If not, it records a new channel in place of the previous one together with time when watching it began - step 314. If T time has already elapsed, it checks if the currently selected channel is identical to the channel recorded in the previous position in the list - step 318. If not, in step 319 it records time of finish of watching the current channel, and next it comes to the next item on the list -



step 320. If only one list is used, it has a form of a circular buffer, which means that in case it is fully filled in, the new element is recorded in place of the oldest one. If many lists are used, a move to the new position causes that a new record is added to the list. If in step 318 it turns out that the channels are identical, it checks if the break between the end of watching the previous item in the list and time of the start of watching the current item on the list is lower than  $T$  – step 321. If so, it allows maintaining continuity in the record of the viewing rating of the given channel on the list if the break in watching it was not longer than  $T$ . The time of the end of watching a given channel will be then – in step 322 – assigned to time of finishing the given program in the previous item on the list. Next data of the newly selected channel are written in the current record together with time when watching it began – step 323. If in step 312 turning off the television set was the event, the function comes to step 313. If elapse of the defined multiple  $T$  time was the event, the function comes to step 318. It allows avoiding problems with a loss of power, when no information was recorded on the list. If the event was a change of the day (24.00 hour), the system goes back to step 302 in order to settle, if a new list should be created. In step 315 the function checks if turning off the television set was the event. If so, the next step 316 is the end of its operation. In opposite case it comes to monitoring the next events – step 312.

The algorithm of selecting a program (with the use of viewing ratings table) at turning on the television set is presented in fig. 7, 8 and 9. After turning the television set on, the system defines in step 401 in which mode it operates, which means if it is in the mode of selecting a recent or the most frequently watched program – step 402. If it operates in the mode of selecting the most recently watched program, it checks if there is an entry in the table in the previous days for the current time interval, which means that it goes back in the table day by day, until it finds the filled in field – 403. If it is found, the most recently watched channel is selected for the given time interval – step 404. If not, the system checks if for the previous

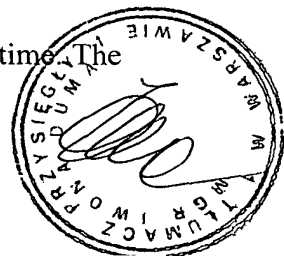


days there is a field filled in the table for the next time interval – 405. If so, the most recently watched channel is selected from the next time interval – step 406. If not, then in step 407 a channel, which was watched just before the most recent turning off the television set, is selected. Next the television set is positioned to the selected channel – step 408. If the system operates in the mode of most frequently watched channel, the first step is to check, if for the current T time interval, there are data available for the previous days – step 409. If so then in step 410 it checks, if there are data available for the next time interval for the previous days. In case these data are available, the viewing rating of the favorite channel from current time interval is compared with the viewing rating of the next time interval in steps 412, 413 and 414.

Next a channel with higher viewing rating is selected – from the current time interval (K1) – step 415, or the next (K2) – step 416. If there are no data for the next time interval, the most recently watched program is selected from current time interval – step 411. If data for current time interval are not available, the system checks, if there are data available for the next time interval – 418. If so, then in step 419 the most frequently watched channel is selected from the next time interval. If not, then a channel, which was selected just before the television was last turned off, is selected – step 420. Next in step 417 the television set is positioned to the selected channel.

The method of defining the most frequently watched channel in a given time interval is the following. The system fetches values from separate rows for a given column and selects the channel, which was most frequently watched. If there are more channels with the same viewing rating, the most recently watched one will be selected.

The algorithm of selecting the program (viewing rating list) at turning on the television set is illustrated in fig. 10, 11 and 12 of the drawing. At selecting a program, the system searches the list looking for the program, which was watched on a specific day and time. The





time, that is searched for is current time or current time + T. It searches consecutively the previous days. In order to define the date of the day, which will be the previous day, the following relations are used:

- for the selected option (separately for each day of the week): previous day is defined by deduction of seven days from the current day,
- for the selected option (total for every day): previous day is defined by deduction of one day from the current day,
- for the selected option (total for days 'Monday-Friday' and separately for 'Saturday' and separately for 'Sunday'): previous day is defined depending on the current day of the week. If this is Monday, Tuesday, Wednesday, Thursday or Friday the search is made backwards, same as for option 'total for each day', but Saturdays and Sundays are skipped. If this is Saturday or Sunday the search is carried out same as for option 'separately for each day of the week',
- for selected option (total for days 'Monday-Friday' and total for days 'Saturday-Sunday'): previous day is defined depending the current day of the week. For days Monday, Tuesday, Wednesday, Thursday or Friday the search is carried backwards as for option 'total for each day', but Saturday and Sunday are skipped. For days Saturday, Sunday the search is carried backwards as for option 'total for each day', but Monday, Tuesday, Wednesday, Thursday and Friday are skipped.

The procedure is started in time when the television set is turned on in step 501. It is initially settled, in which mode the system is – step 502. If this is the mode of selecting the most recently watched program, it checks, if for the current time, in the previous days, any channel was watched – step 503. It is done by going back on the list to earlier days. If a channel watched in a given time is found, it reads its number in step 504. If it does not find such channel, it checks, if in the previous days there was a channel watched later than



the current one – 505. For example in time defined by the formula ‘current time + $m \cdot T$ ’, where  $m$  is a coefficient defined in the options of the system. The longer  $m$  is, the higher the probability of finding any channel, but in the same time there is a lower chance that this will be the channel, which will be convenient for the user. Next the system, by going back on the list to earlier days, checks if in time interval between current time and time increased by  $m \cdot T$  there is any channel. If so, then in step 506 its number will be read. If it does not find any channel, it reads the number of the channel watched most recently, it is before turning off TV set – step 507. Next, in step 508 it sets up the channel, which was read.

If the system operates in the mode of the most frequently watched channel, the first step is to check, if there are data available for current time about the previous days – step 509. If so, then in step 510 it checks if there are data available for the previous days about time later by  $m \cdot T$ . If they are available, the viewing rating of the favourite channel is compared with the current and later time in the steps 512, 513 and 514. Next the channel with greater viewing rating is selected – from current time ( $K1$ ) – step 515, or later time ( $K2$ ) – step 516.

If there are no data for the later time in step 511 the most frequently watched program in current time, is selected. If data related to current time are not available, the system checks if there are data for time later by  $m \cdot T$  - 518. If so, than in step 519 the channel, which is most frequently watched in the later time, will be selected. If not, then in step 520 a channel, which was watched just before the TV set was last turned off, will be selected. Next the TV set is positioned to the selected channel – step 517.

Example of the system operation, with the use of the table, is shown below. In the example there is one table, defining all days of the week, which has four rows, and remembers the viewing rating in the last four days. The time interval -  $T$  is 10 minutes.



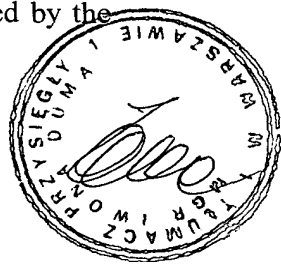
The table was presented as it looks like for hours 18 - 22.

18						19						20						21					
		5	5	5	5	5	5	7	7	7	7	7	7	7	8	8	8	8	8	8	8		
				7	7	7	7	7	7	7	7	7	7	7	7	7	7	5	5	5	5	5	
						7	7	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
8	8	8	5	5	5	5	5	5	5	5	7	7	7	7	7	7	7	7	7	7	7		

Today the user watched channel 5 in the hours 18:20-19:20, channel 7 in the hours 19:20-20:30 and channel 8 in the hours 20:30-21:40. Yesterday from 18:40 to 21:10 – channel 7 and from 21:10 to 22:00 – channel 5. The day before yesterday from 19:00 to 19:20 channel 7, and from 19:20 to 22:00 channel 5. When the user will turn on the TV set tomorrow for example at 19:00, the table will look in the following way:

18						19						20						21					
		5	5	5	5	5	5	7	7	7	7	7	7	7	8	8	8	8	8	8	8		
				7	7	7	7	7	7	7	7	7	7	7	7	7	7	5	5	5	5	5	
						7	7	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
8	8	8	5	5	5	5	5	5	5	5	7	7	7	7	7	7	7	7	7	7	7		

If the TV set is in the mode of selecting the most recently watched program, channel 5 will be selected. However, if it is in the mode of selection of the most frequently watched program, channel 7 will be selected. During the time when the program is still watched, the upper row of the table will be gradually filled in with numbers of channels, which are watched by the



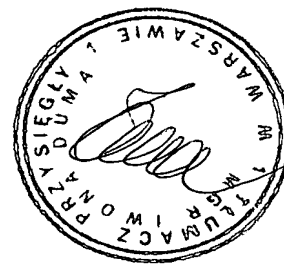
user. Using the above example, if the system used one viewing rating list, in which dates and hours were recorded, it would look in the following way (assuming that the date is June 20<sup>th</sup>, 2002):

Channel	Start	Stop
8	2002.06.20 20.35	2002.06.20 21.40
7	2002.06.20 19.22	2002.06.20 20.30
5	2002.06.20 18.23	2002.06.20 19.17
5	2002.06.19 21.20	2002.06.19 22.00
7	2002.06.19 8.40	2002.06.19 21.10
5	2002.06.18 19.20	2002.06.18 22.00
7	2002.06.18 19.00	2002.06.18 19.20
Channel	Start	Stop
7	2002.06.17 20.05	2002.06.17 22.00
5	2002.06.17 18.33	2002.06.17 20.00
8	2002.06.17 18.02	2002.06.17 18.28

As one can see, in the list exact times of start and finish of watching separate programs could have been saved. If the system was to use a few lists of viewing rating, they would look in the following way. When the user turns on the TV set tomorrow, for example at 19.00, the list will look in this way:

2002.06.20

Channel	Start	Stop
8	20.35	21.40



7	19.22	20.30
5	18.23	19.17

2002.06.19

5	21.10	22.00
7	18.40	21.10

2002.06.18

5	19.20	22.00
7	19.00	19.20

2002.06.17

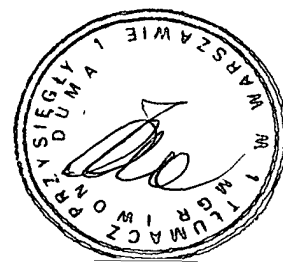
7	20.05	22.00
5	18.33	20.00
8	18.02	18.28

When the user turns on the TV set tomorrow, for example at 19.00, and when the system uses one list and there is space in it to store records, its look will not change.

If it uses a few lists and finds out that there is no space for creating a new list, the list from 2002.06.17 will be deleted, and the data, which were in it, as of 2002.06.18 will be rewritten into the list, which will look in the following way:

2002.06.18

5	19.20	22.00
7	19.00	19.20



5	18.33	19.00
8	18.02	18.28

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 PATENT ATTORNEY  
 Eng. Andrzej Małowski, MA



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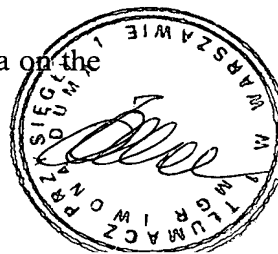
### **Patent claims**

1. The method of selecting a channel set up at turning on the TV set is implemented based on monitoring channels, watched by the user, with storing information about time of watching these channels in the same time, **characterized in that** the function 'Power-on' of the TV set is used, after the start of which the user's channel requested at a specific time automatically turns on. The requested channel is a television channel, which was most recently or most frequently watched at a given time. Selection of a channel is realized on the grounds of viewing rate statistics, which are created by means of a list, the records of which include information about the channel, time of start and finish of watching a given channel. Statistics are created separately for each day of the week or separately for Monday-Friday and separately for Saturday-Sunday or separately for Monday – Friday and individually for Saturday and Sunday.
2. The method, according to claim 1, **characterized in that** one list is created, which operates based on the principle of circular buffer, in which time is given as date and hour.
3. The method according to claim 1, **characterized in that** separate lists are created for each day, which operate based on the principle of tables with unlimited number of records, in which time is given only as an hour.
4. The method according to claim 1, **characterized in that** television channel, which was most recently watched on a given day at a given hour is selected, however if there is no data on viewing rating of channels at the given hour, the channel watched most



recently at a later hour is selected.

5. The method according to claim 1, **characterized in that** the TV channel, which was most frequently watched on a given day, at a specific hour is selected, and in case when two channels have the same viewing rating the most recently watched channel is selected. However in case there are no data on channel viewing rating at a given hour, the channel watched most frequently at a later hour is selected.
6. The method according to claim 5, **characterized in that** in case when viewing rating of the most frequently watched TV channel in a given time is compared with the viewing rating of the channel watched at a later time, the channel with greater viewing rating is selected.
7. The method of selecting the channel, set up at turning on the TV set, realized on the grounds of monitoring the channels, watched by the user with storing information about time of watching these channels in the same time, **characterized in that**, the function 'Power-on' of the television set is used, after the start of which, the user's channel, requested at a given time turns on automatically, while the requested channel is the one, which was most recently or most frequently watched in a specific time. While selection of the channel is realized on the grounds of viewing statistics, which are created with the aid of a table, the columns of which define time intervals, rows define consecutive days, and fields define number of the channel, which was watched in a given time interval of this day.
8. The method according to claim 7, **characterized in that** in case of no space for a new statistics, the statistics related to the oldest period are deleted, and its data are copied into a free space of the currently oldest statistics.
9. The method according to claim 7, **characterized in that** the TV channel, watched recently on a given day, at a specific hour, is selected, while in case of no data on the





viewing rating of channels at a given hour, the channel , watched recently at a later hour is selected.

10. The method according to claim 7, **characterized in that** the most frequently watched channel on a given day at a given hour, is selected, and in case when two channels have the same viewing rating, the most recently watched channel is selected. However in case when there are no data on channel viewing rating at a given hour, the channel watched most frequently at a later hour is selected.
11. The method according to claim 7, **characterized in that** in case when viewing rating of the most frequently watched television channel in a given time is compared with a viewing rating of the television channel watched later, the channel with greater viewing rating is selected.

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Eng. Andrzej Maślowski, MA

*/the above stamp and signature are repeated in the lower right-hand corner of each subsequent page*  
*of the document/*

*/in the right hand upper corner of the page the following number:/*

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*/the above number is repeated on each subsequent page with diagrams/*

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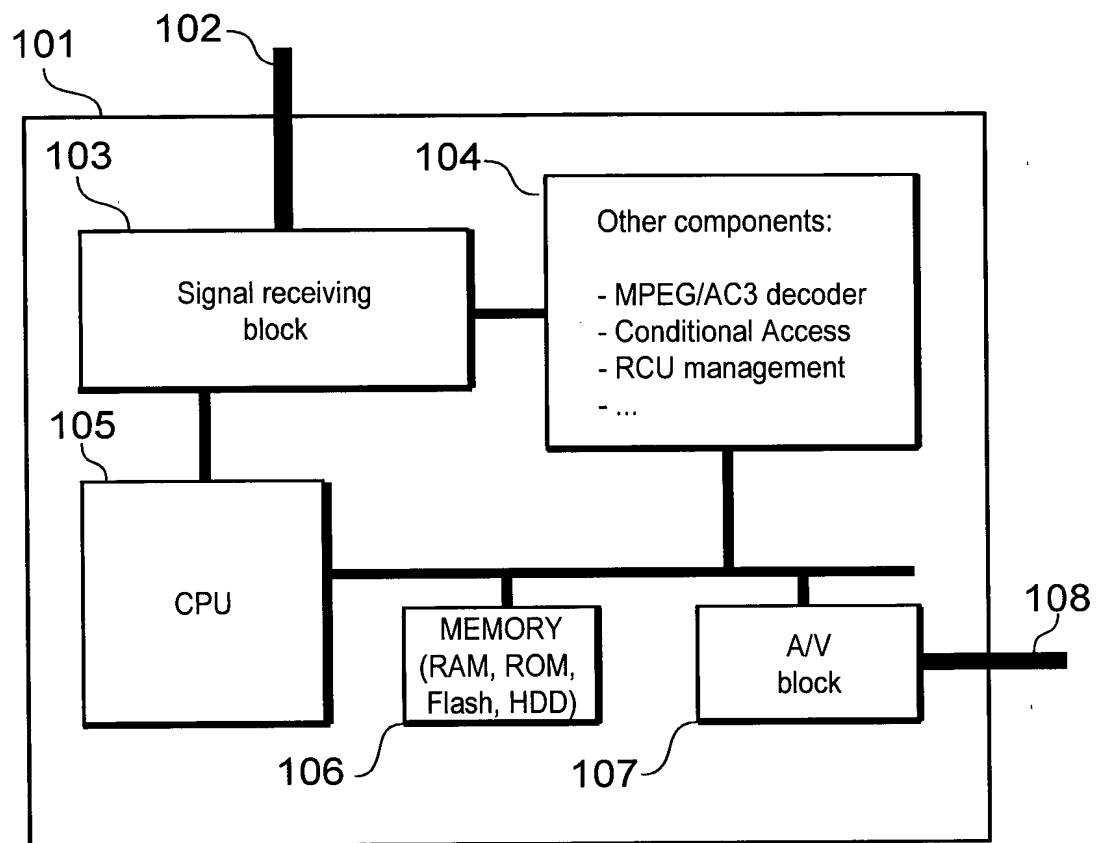


Fig.1



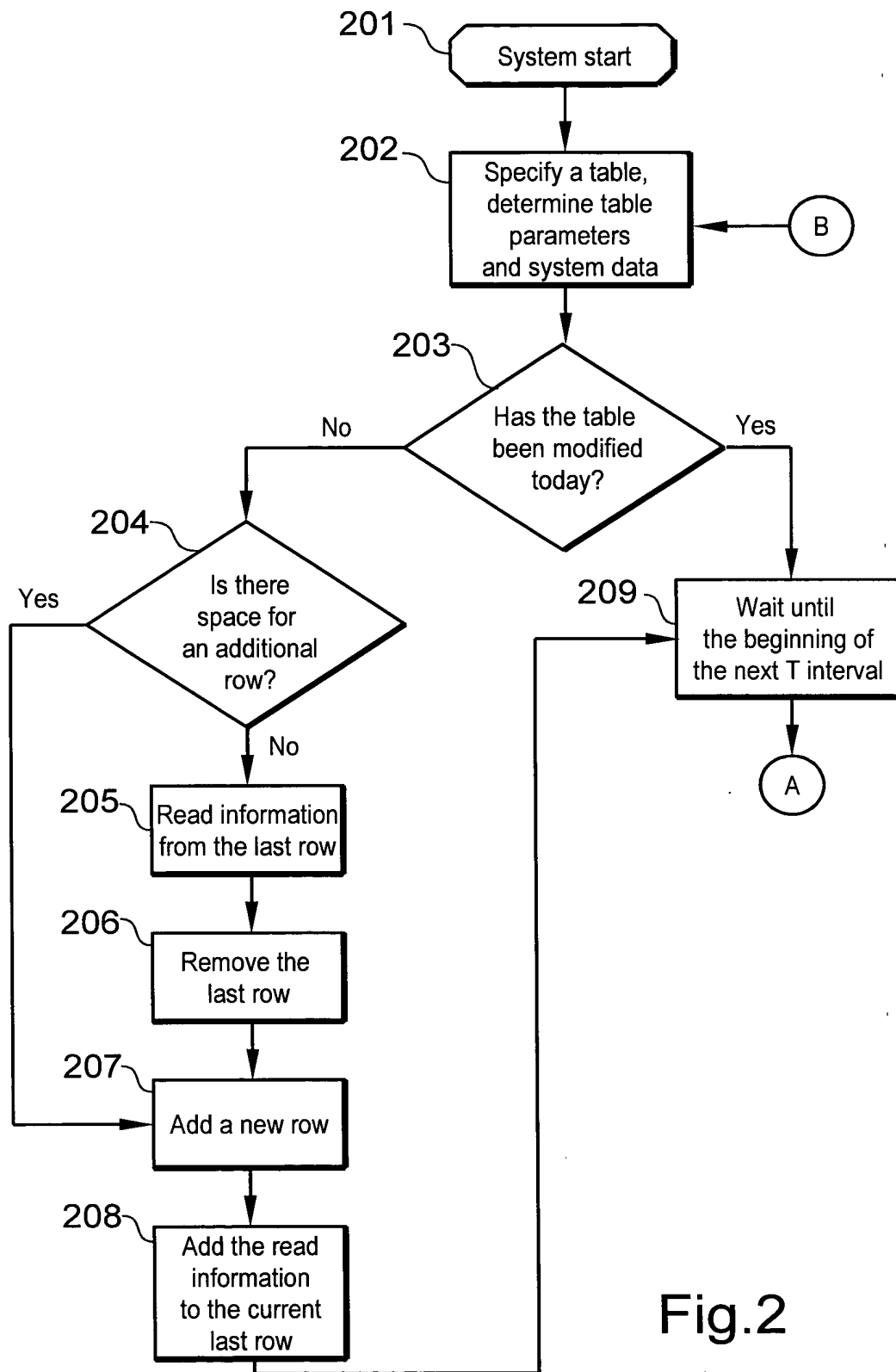


Fig.2



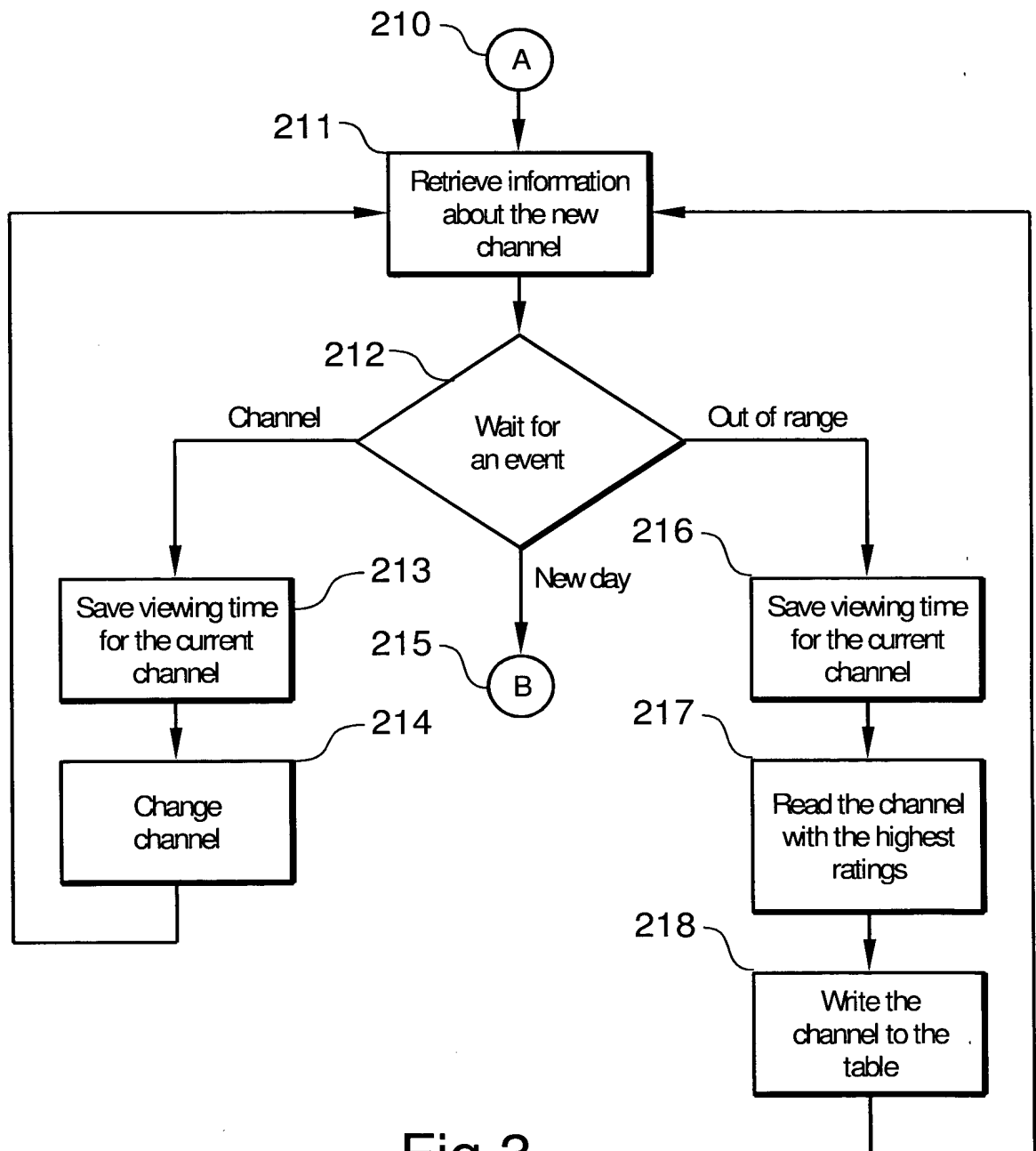
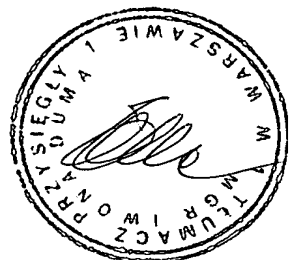


Fig.3



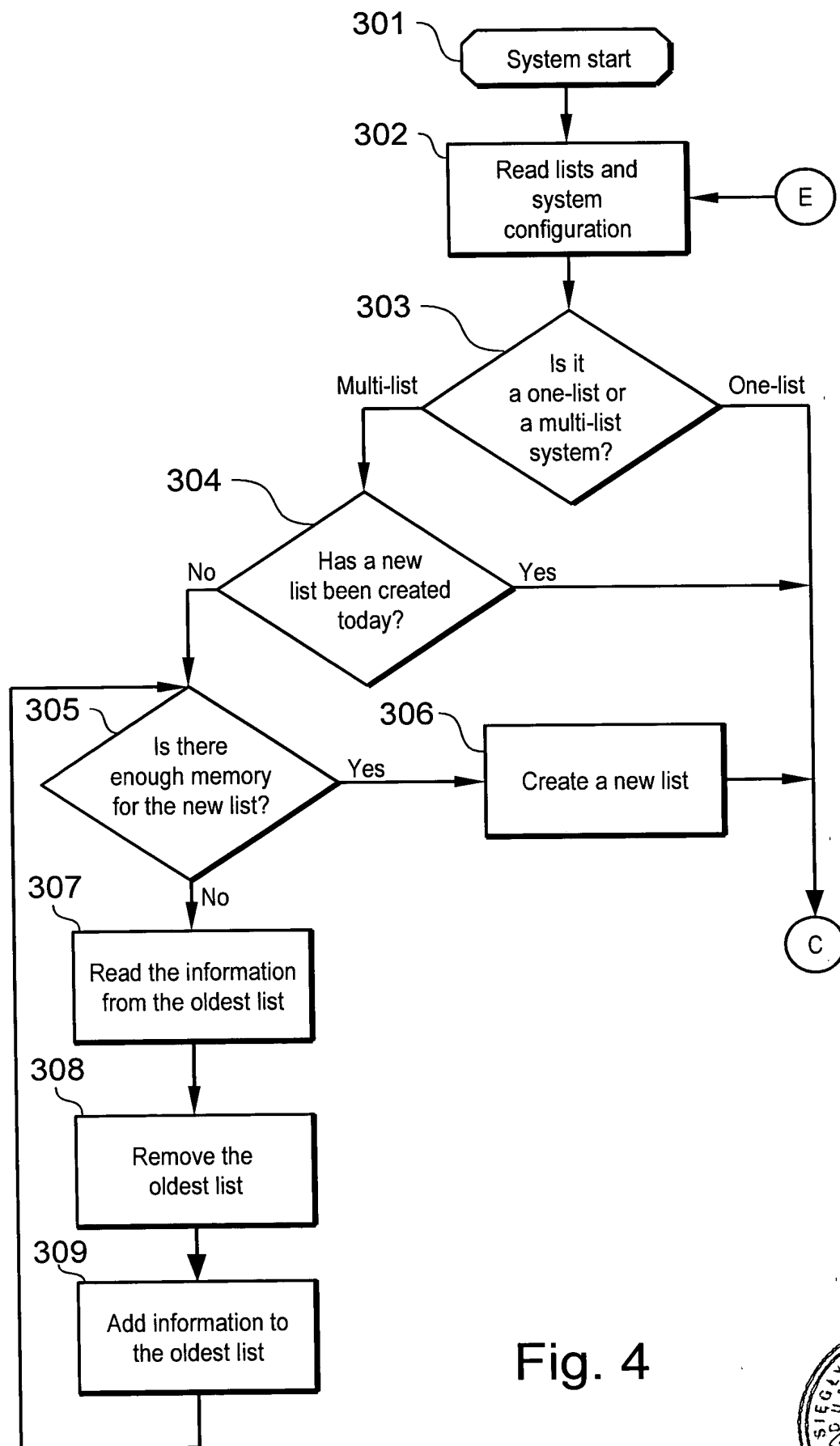
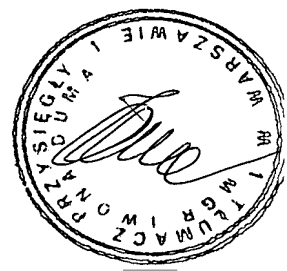


Fig. 4



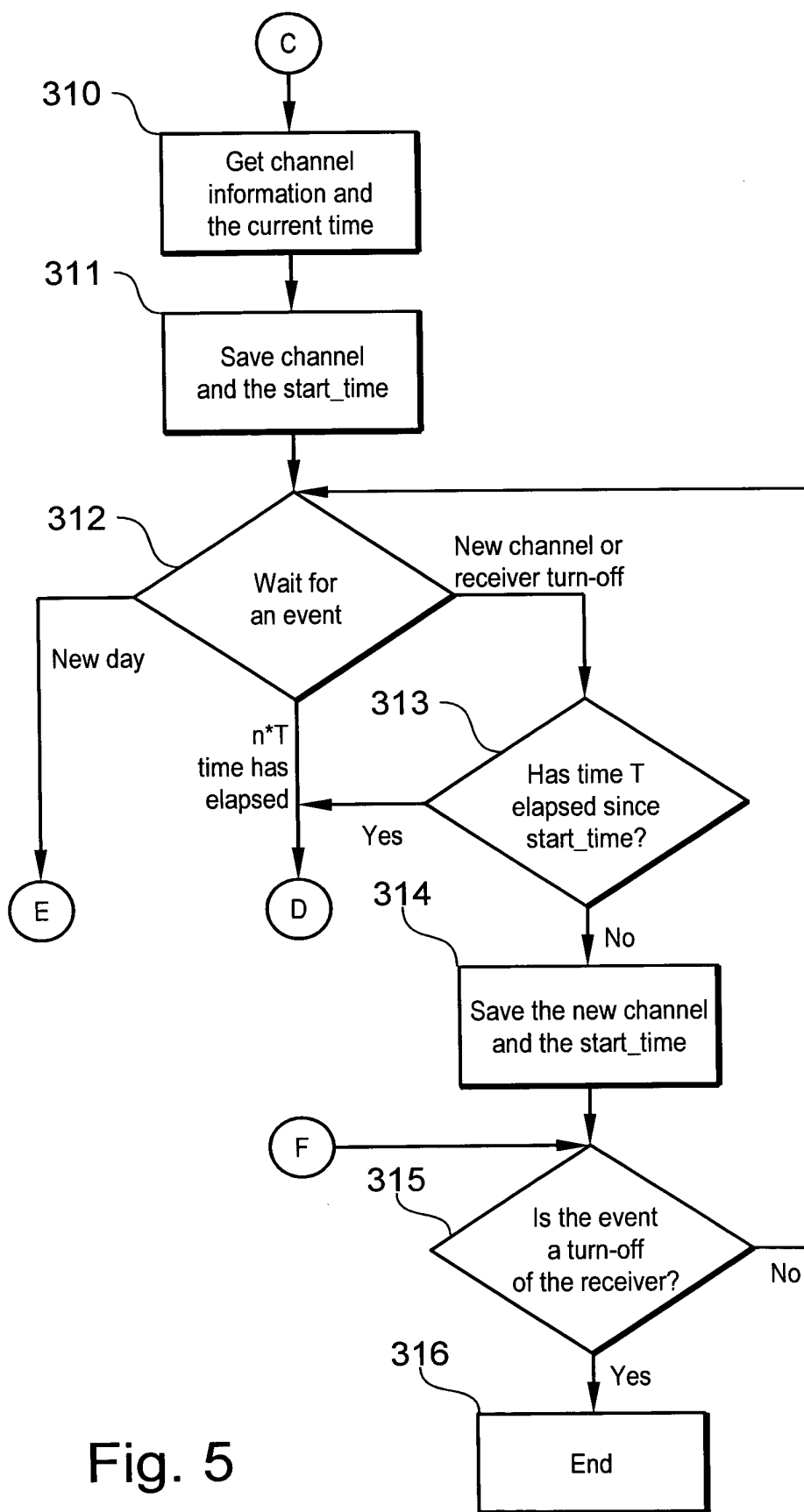
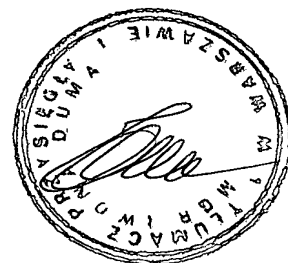


Fig. 5



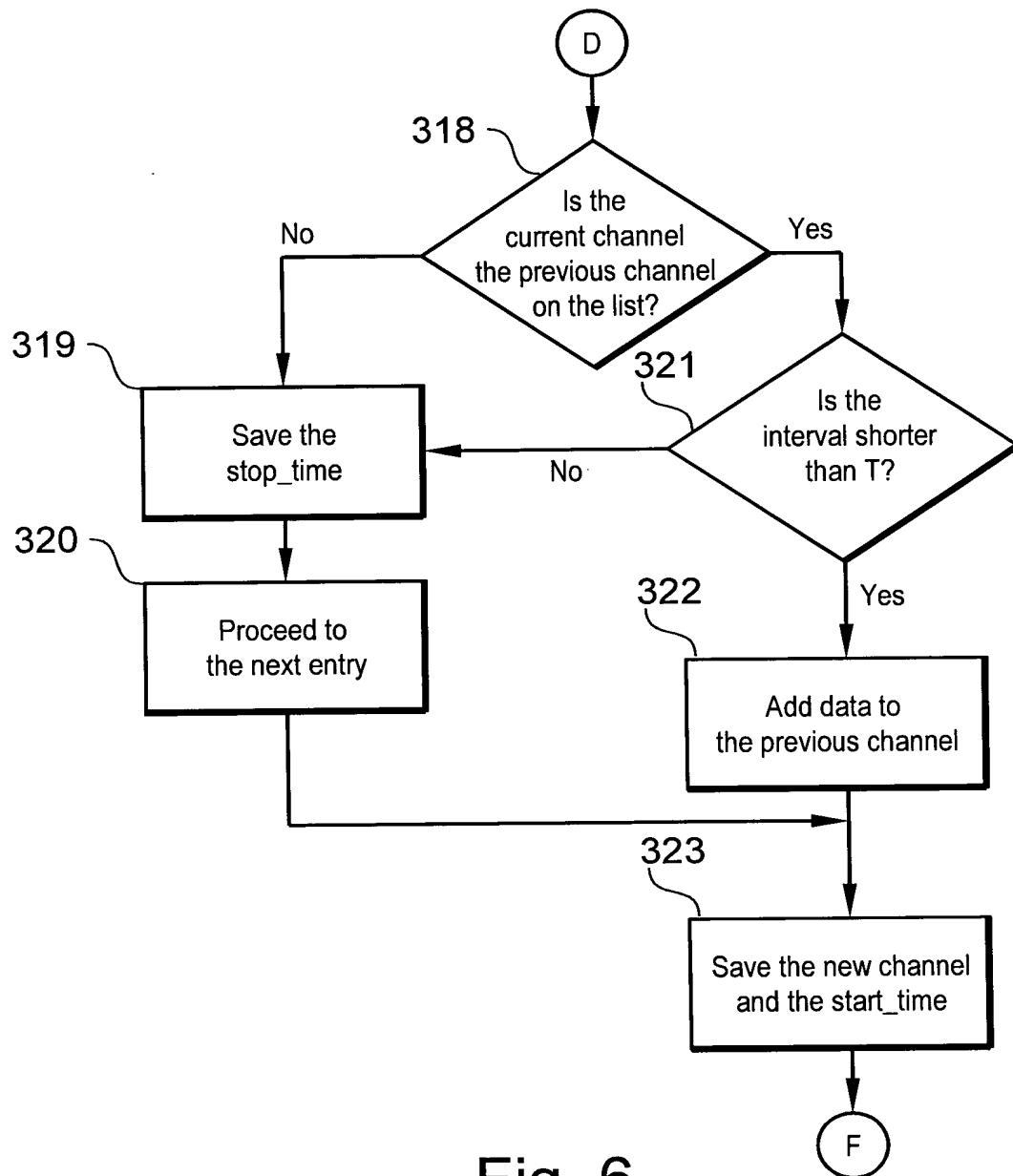


Fig. 6



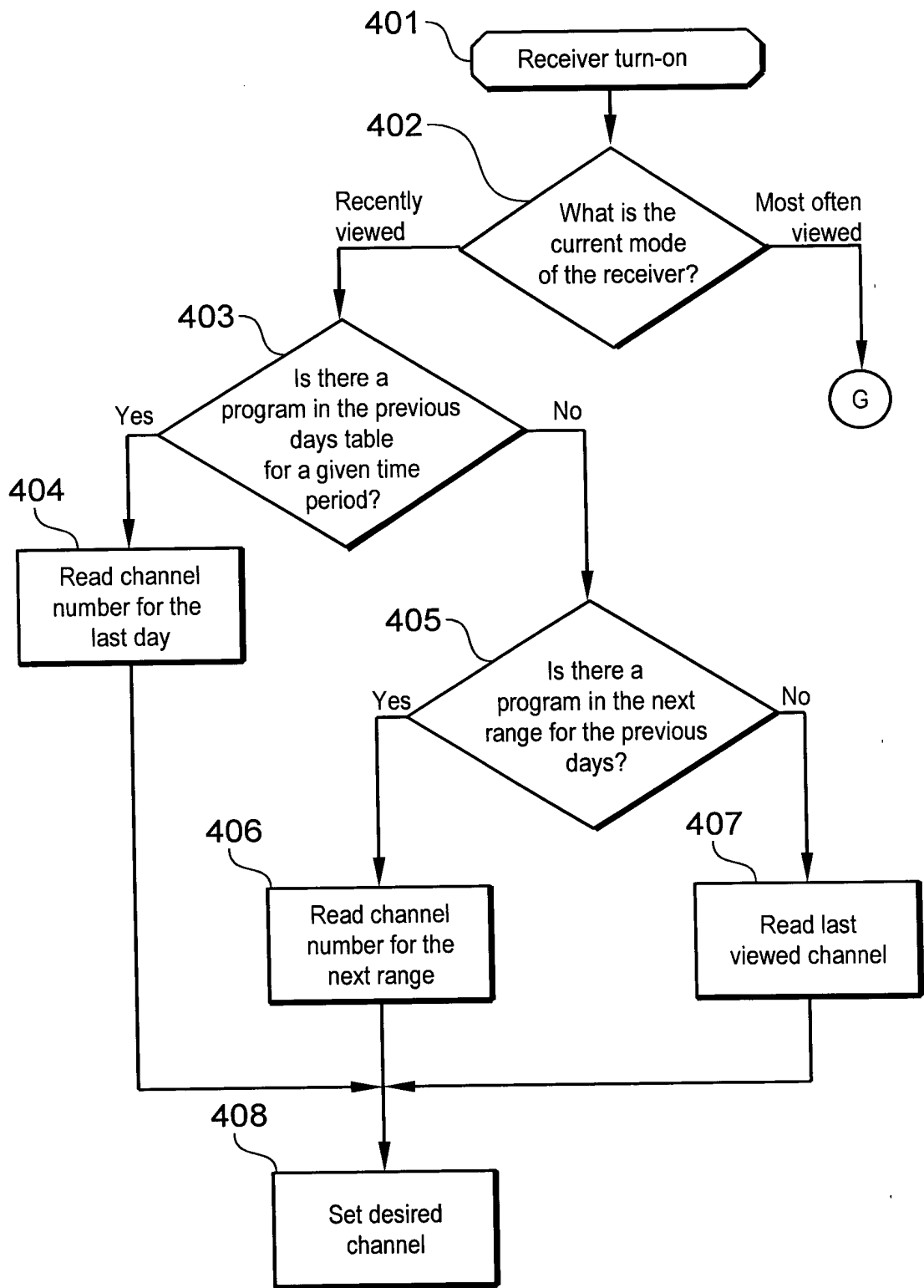


Fig. 7





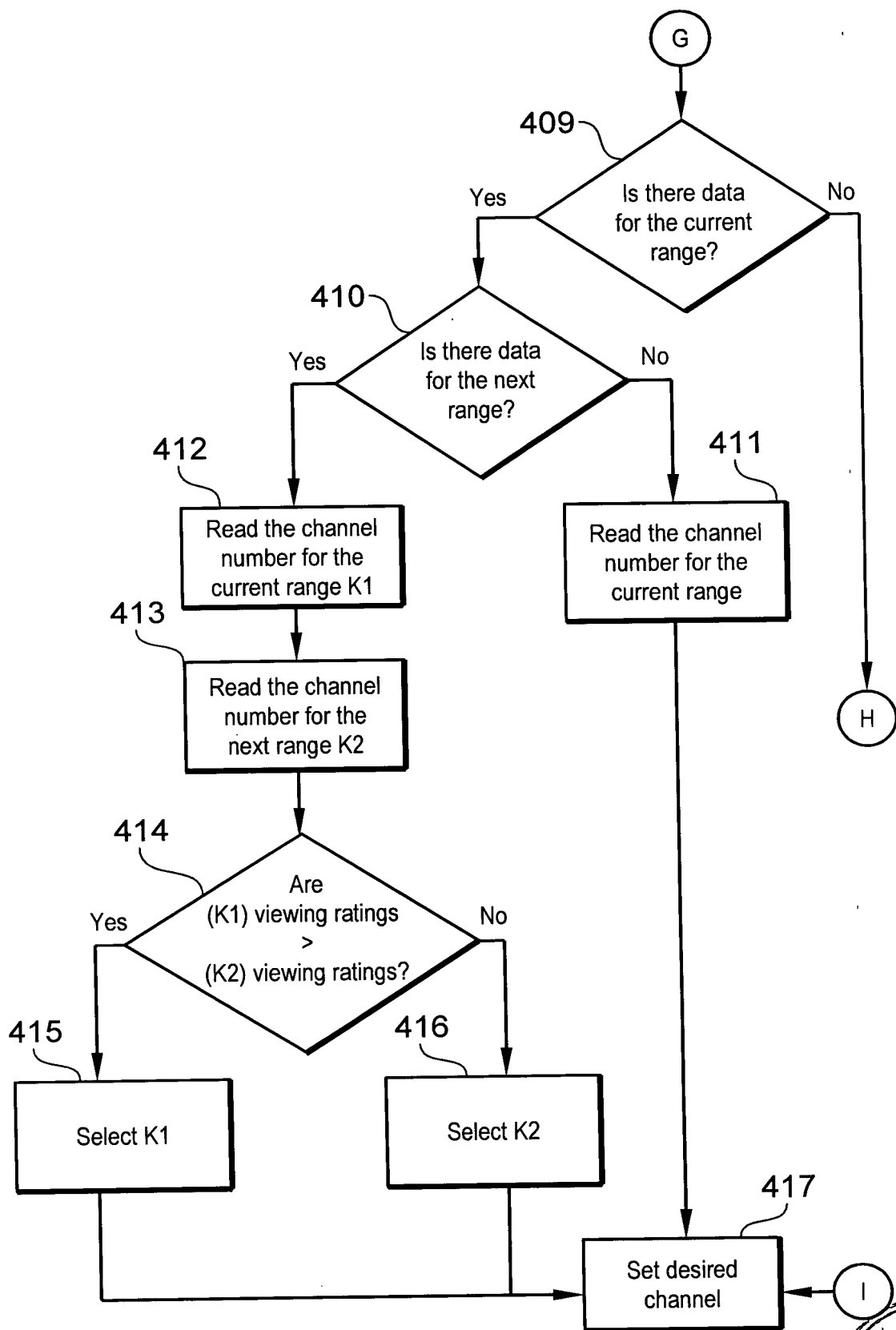
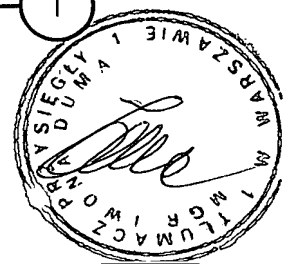


Fig. 8



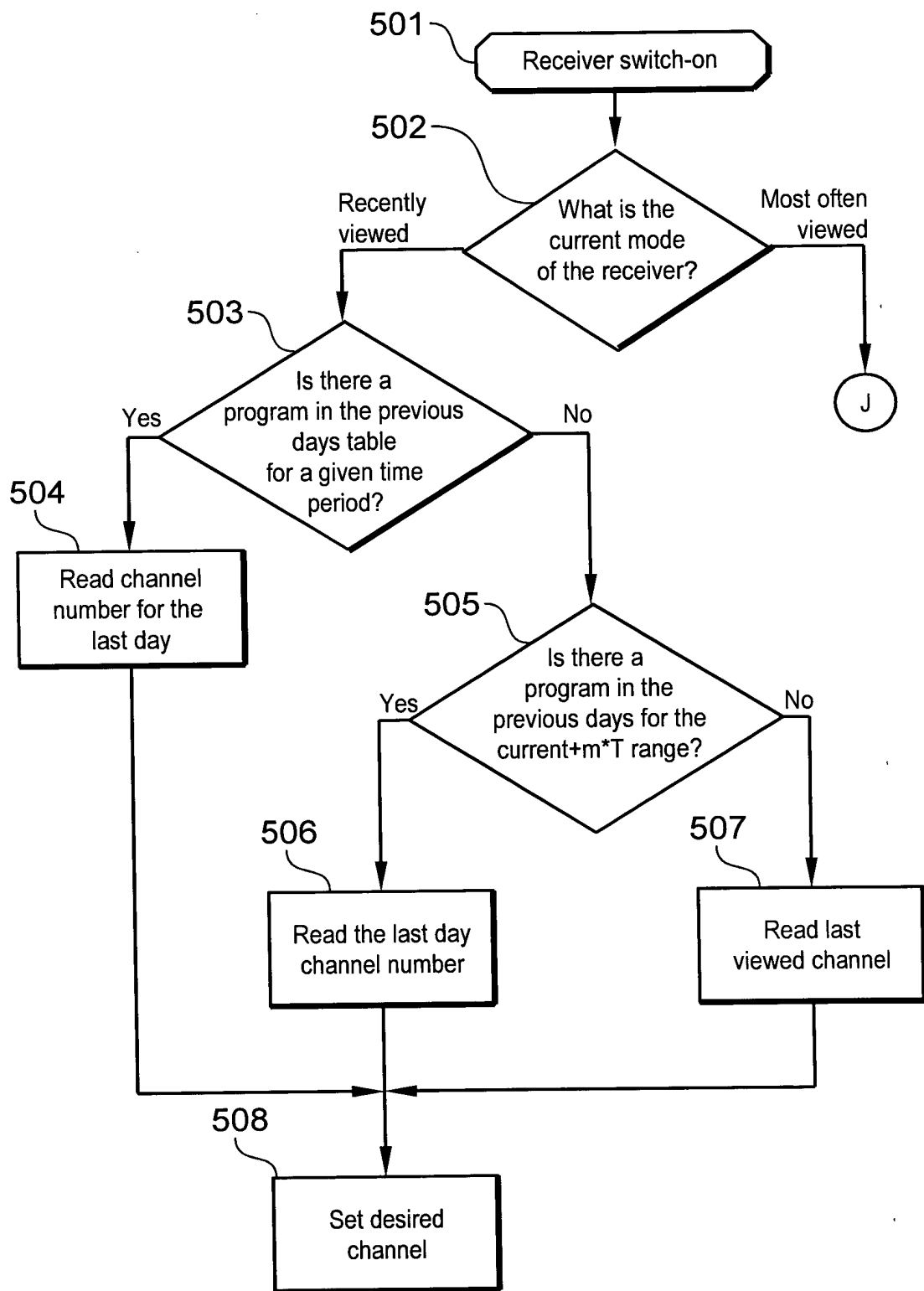
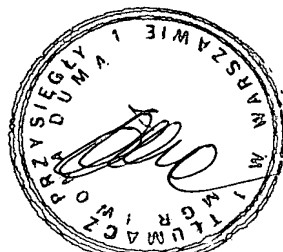


Fig. 10



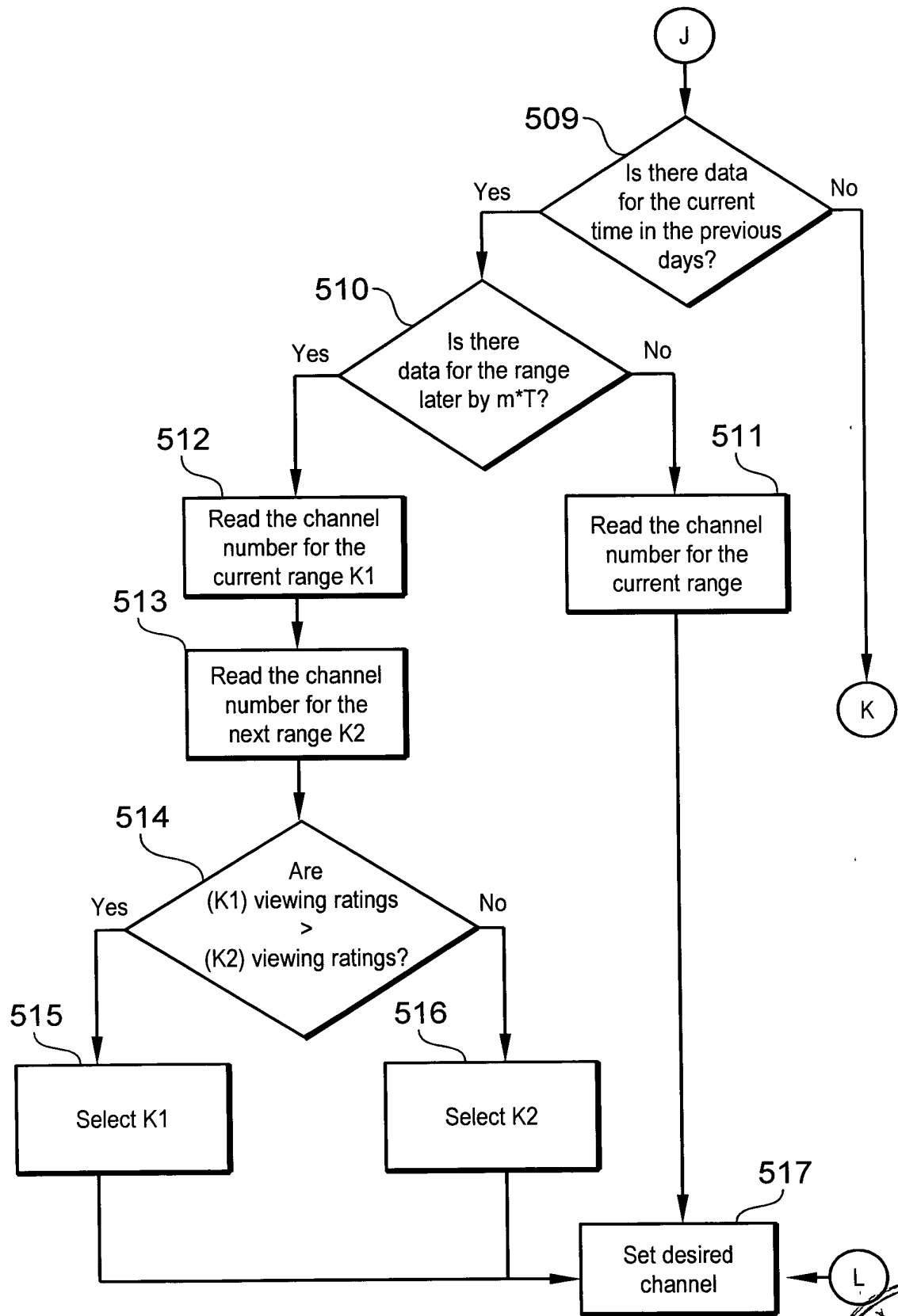


Fig. 11



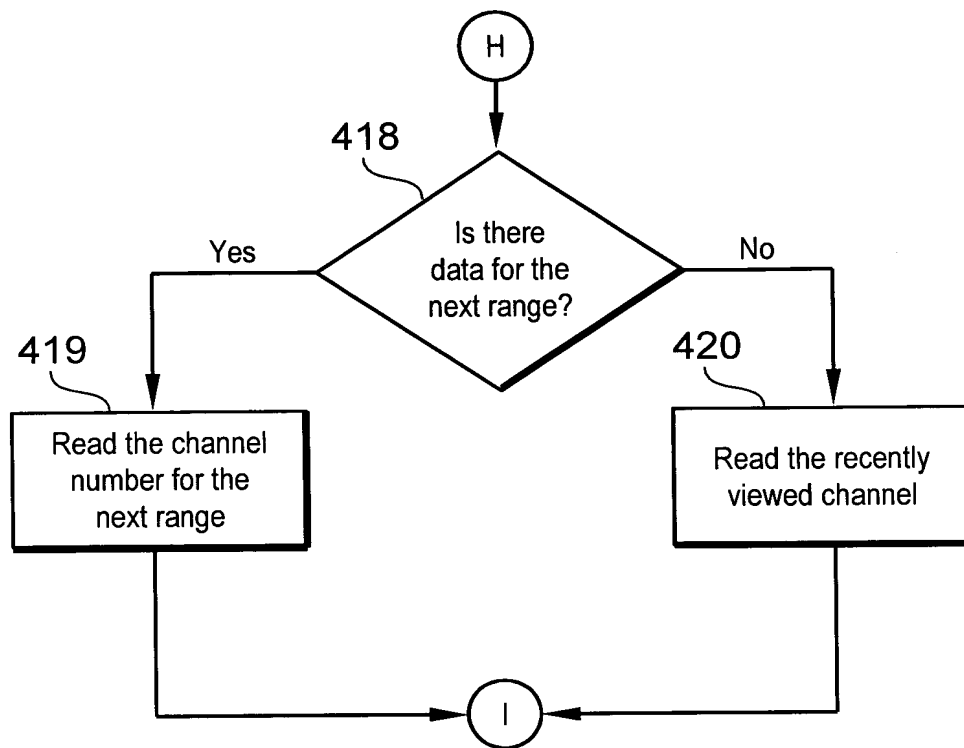


Fig. 9

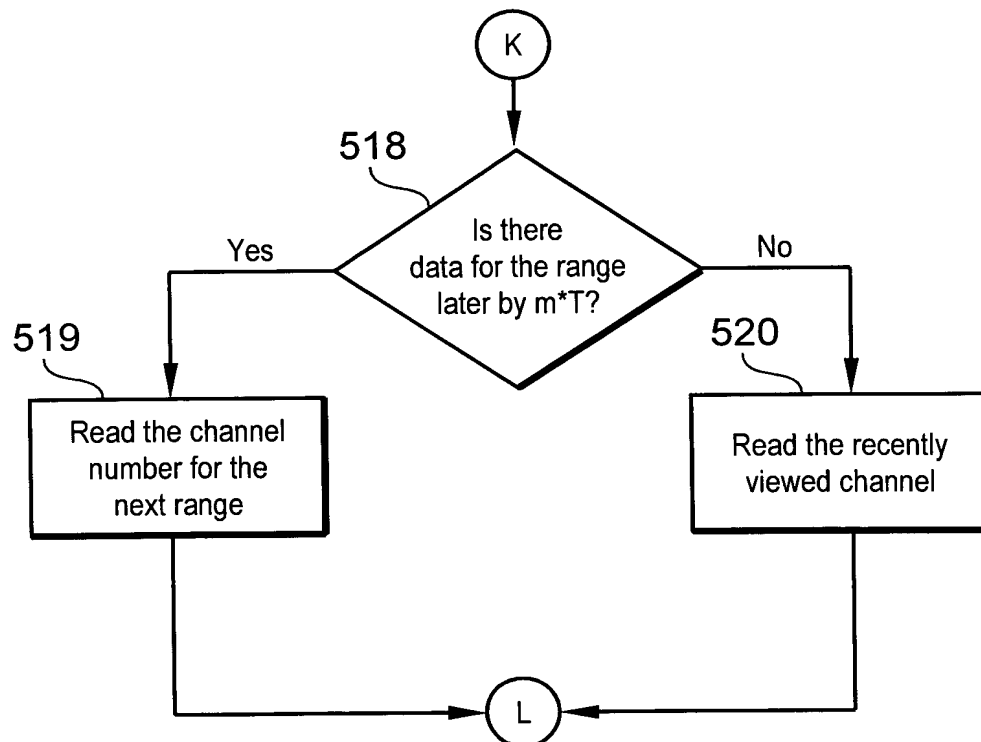


Fig. 12



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**Repertory No.: 541/9/2003**

*I, the undersigned, Iwona Duma, sworn translator of the English language for the District Court of the City of Warsaw, hereby certify that the above text is a true and complete translation of the Polish original document provided to me.*

*Warsaw, September 5, 2003.*

*Iwona Duma*

